(Why) Are Internal Labor Markets Active in French Business Groups?

Giacinta Cestone (Cass Business School and CSEF)
Chiara Fumagalli (Bocconi University, CSEF and IGIER)
Francis Kramarz (CREST(ENSAE))
Giovanni Pica (Università di Salerno and CSEF)

WORK IN PROGRESS

CSEF-IGIER Symposium on Economics and Institutions
June 23-27, 2014
Building a bridge between labor and finance

- Labor literature has studied Internal Labor Markets (ILMs) **WITHIN FIRMS**. Focus on internal careers (Doeringer and Piore).

- Finance literature has suggested that **BUSINESS GROUPS** run ILMs alongside Internal Capital Markets to make up for frictions in external markets (Khanna and Palepu, 1997; Khanna and Yafeh, 2007).

- No empirical study so far on whether and how ILMs function within groups **BETWEEN FIRMS**.
Business Groups

- BGs are collections of legally independent firms partly or wholly owned by a single family/firm.
- BGs account for a large fraction of the economic activity both in **EMERGING** and in **DEVELOPED** economies (LaPorta et al., 1999; Faccio and Lang, 2002).

*Comprehensive data for France:*
- From 1999 to 2010, affiliated firms accounted for around **40%** of total employment and **60%** of value added.
- In manufacturing, such percentage is as high as **70%** (above **90%** in automotive and energy).
Research questions

Do **Internal Labor Markets operate** within French business groups?

- Do ILMs facilitate within-group but between-firms job-to-job transitions?
- Are there occupations for which the ILM effect is stronger?
- In which groups is the ILM more active?

What **functions** do ILMs perform within groups and when are they more likely to add value (or prevent destruction)?

- Make up for frictional external labor markets (firing costs, asymmetric information, training, unions, regulations)
- Insurance across firms: allow group firms to lower labor adjustment costs when faced with idiosyncratic shocks
- Provide insurance to workers through job stability within the group → spur incentives to acquire group-specific human capital

Part of a **broader research agenda** on business groups:

- Interaction between internal capital and labor markets
- Affiliated firms vs. stand-alone firms: differences in terms of employment policy, exports, etc.
- Endogenous group formation and diversification.
Research questions

Do **INTERNAL LABOR MARKETS OPERATE** within French business groups?

- Do ILMs facilitate within-group but between-firms job-to-job transitions?
- Are there occupations for which the ILM effect is stronger?
- In which groups is the ILM more active?

What **FUNCTIONS** do ILMs perform within groups and when are they more likely to add value (or prevent destruction)?

- Make up for frictional external labor markets (firing costs, asymmetric information, training, unions, regulations)
- Insurance across firms: allow group firms to lower labor adjustment costs when faced with idiosyncratic shocks
- Provide insurance to workers through job stability within the group $\rightarrow$ spur incentives to acquire *group*-specific human capital

Part of a **BROADER RESEARCH AGENDA** on business groups:

- Interaction between internal capital and labor markets
- Affiliated firms vs. stand-alone firms: differences in terms of employment policy, exports, etc.
- Endogenous group formation and diversification.
Research questions

Do **INTERNAL LABOR MARKETS OPERATE** within French business groups?
- Do ILMs facilitate within-group but between-firms job-to-job transitions?
- Are there occupations for which the ILM effect is stronger?
- In which groups is the ILM more active?

What **FUNCTIONS** do ILMs perform within groups and when are they more likely to add value (or prevent destruction)?
- Make up for frictional external labor markets (firing costs, asymmetric information, training, unions, regulations)
- Insurance across firms: allow group firms to lower labor adjustment costs when faced with idiosyncratic shocks
- Provide insurance to workers through job stability within the group → spur incentives to acquire *group*-specific human capital

Part of a **BROADER RESEARCH AGENDA** on business groups:
- Interaction between internal capital and labor markets
- Affiliated firms vs. stand-alone firms: differences in terms of employment policy, exports, etc.
- Endogenous group formation and diversification.
Outline

1. The empirical model
2. The data
3. The results
4. Conclusions
Is there an ILM effect on job-to-job transitions?

The ILM should facilitate within-group between-firms job-to-job transitions, if it exhibits less severe frictions than the external labour market:

- Is a group-affiliated firm more likely to hire workers originating from its own group rather than from other firms in the economy? (Inflows)
Is there an ILM effect on job-to-job transitions?

The ILM should facilitate within-group between-firms job-to-job transitions, if it exhibits less severe frictions than the external labour market:

- Is a group-affiliated firm more likely to hire workers originating from its own group rather than from other firms in the economy? (Inflows)

**Identification Challenge:** endogeneity of group structure (in terms of sectors, regions, occupations) may affect within-group mobility patterns.
Is there an ILM effect on job-to-job transitions?

The ILM should facilitate within-group between-firms job-to-job transitions, if it exhibits less severe frictions than the external labour market:

- Is a group-affiliated firm more likely to hire workers originating from its own group rather than from other firms in the economy? (Inflows)

**IDENTIFICATION CHALLENGE**: endogeneity of group structure (in terms of sectors, regions, occupations) may affect within-group mobility patterns.

In this paper we try to address one type of bias coming from the occupation structure of the group.
Is there an ILM effect on job-to-job transitions?

The ILM should facilitate within-group between-firms job-to-job transitions, if it exhibits less severe frictions than the external labour market:

- Is a group-affiliated firm more likely to hire workers originating from its own group rather than from other firms in the economy? (Inflows)

**Identification Challenge**: endogeneity of group structure (in terms of sectors, regions, occupations) may affect within-group mobility patterns.

In this paper we try to address one type of bias coming from the occupation structure of the group.

In order to address this concern, we follow Kramarz and Thesmar (2013).
Consider the triplet occupation of origin $o$, occupation of destination $z$, affiliated firm $j$.

Denote as $c$ the set of ALL workers in occupation $o$ in a given firm at $t-1$ that, at time $t$, move to occupation $z$ in a DIFFERENT firm.

The probability that worker $i$ moving from occupation $o$ to occupation $z$ finds a job in firm $j$ is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j}BG_{i,j} + \epsilon_{i,j}$$  \hspace{1cm} (1)$$

where:

- $\beta_{c,j}$: natural tendency of workers moving from occupation $o$ to occupation $z$ to find a job in firm $j$.
- $\gamma_{c,j}$: excess probability of a worker moving from $o$ to $z$ to be employed in firm $j$ if he/she comes from a firm that belongs to the same group as $j$. 

Affiliated firms hiring workers (Inflows)

Consider the triplet occupation of origin $o$, occupation of destination $z$, affiliated firm $j$.

Denote as $c$ the set of **ALL** workers in occupation $o$ in a given firm at $t - 1$ that, at time $t$, move to occupation $z$ in a **DIFFERENT** firm.

The probability that worker $i$ moving from occupation $o$ to occupation $z$ finds a job in firm $j$ is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j}BG_{i,j} + \varepsilon_{i,j}$$

where:

- $\beta_{c,j}$: natural tendency of workers moving from occupation $o$ to occupation $z$ to find a job in firm $j$.
- $\gamma_{c,j}$: excess probability of a worker moving from $o$ to $z$ to be employed in firm $j$ if he/she comes from a firm that belongs to the same group as $j$. 

Cestone, Fumagalli, Kramarz, Pica (Internal Labor Markets in Business Groups)
Consider the triplet occupation of origin $o$, occupation of destination $z$, affiliated firm $j$.

Denote as $c$ the set of ALL workers in occupation $o$ in a given firm at $t - 1$ that, at time $t$, move to occupation $z$ in a DIFFERENT firm.

The probability that worker $i$ moving from occupation $o$ to occupation $z$ finds a job in firm $j$ is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j}BG_{i,j} + \varepsilon_{i,j}$$

(1)

where:

- $\beta_{c,j}$: natural tendency of workers moving from occupation $o$ to occupation $z$ to find a job in firm $j$.
- $\gamma_{c,j}$: excess probability of a worker moving from $o$ to $z$ to be employed in firm $j$ if he/she comes from a firm that belongs to the same group as $j$. 

Consider the triplet occupation of origin $o$, occupation of destination $z$, affiliated firm $j$.

Denote as $c$ the set of **ALL** workers in occupation $o$ in a given firm at $t - 1$ that, at time $t$, move to occupation $z$ in a **DIFFERENT** firm.

The probability that worker $i$ moving from occupation $o$ to occupation $z$ finds a job in firm $j$ is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j}BG_{i,j} + \varepsilon_{i,j}$$  \hspace{1cm} (1)$$

where:

- $\beta_{c,j}$ natural tendency of workers moving from occupation $o$ to occupation $z$ to find a job in firm $j$.
- $\gamma_{c,j}$: excess probability of a worker moving from $o$ to $z$ to be employed in firm $j$ if he/she comes from a firm that belongs to the same group as $j$. 

Consider the triplet occupation of origin $o$, occupation of destination $z$, affiliated firm $j$. Denote as $c$ the set of **ALL** workers in occupation $o$ in a given firm at $t-1$ that, at time $t$, move to occupation $z$ in a **DIFFERENT** firm.

The probability that worker $i$ moving from occupation $o$ to occupation $z$ finds a job in firm $j$ is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j} BG_{i,j} + \varepsilon_{i,j}$$  \hspace{1cm} (1)

where:

- $\beta_{c,j}$: natural tendency of workers moving from occupation $o$ to occupation $z$ to find a job in firm $j$.
- $\gamma_{c,j}$: excess probability of a worker moving from $o$ to $z$ to be employed in firm $j$ if he/she comes from a firm that belongs to the same group as $j$. 

Cestone, Fumagalli, Kramarz, Pica () Internal Labor Markets in Business Groups 6 / 26
Affiliated firms hiring workers (Inflows)

We then define:

\[ R_{c,j}^{BG} = \frac{\sum_{i \in c} E_{i,c,j} BG_{i,j}}{\sum_{i \in c} BG_{i,j}} = \beta_{c,j} + \gamma_{c,j} + \tilde{u}_{c,j}^{BG} \] (2)

as the fraction of workers that are hired by firm \( j \) over all workers moving from occupation \( o \) to \( z \) whose firm of origin BELONGS to the same group as firm \( j \).

And

\[ R_{c,j}^{-BG} = \frac{\sum_{i \in c} E_{i,c,j}(1 - BG_{i,j})}{\sum_{i \in c}(1 - BG_{i,j})} = \beta_{c,j} + \tilde{u}_{c,j}^{-BG} \] (3)

as the fraction of workers that are hired by firm \( j \) over all workers moving from occupation \( o \) to \( z \) and whose firm of origin DOES NOT BELONG to the same group as firm \( j \).
Affiliated firms hiring workers (Inflows)

- We then define:

\[ R_{BG}^{c,j} = \frac{\sum_{i \in c} E_{i,c,j}BG_{i,j}}{\sum_{i \in c} BG_{i,j}} = \beta_{c,j} + \gamma_{c,j} + \tilde{u}_{BG} 
\]

as the fraction of workers that are hired by firm \( j \) over all workers moving from occupation \( o \) to \( z \) whose firm of origin **BELONGS** to the same group as firm \( j \).

- And

\[ R_{c,j}^{-BG} = \frac{\sum_{i \in c} E_{i,c,j}(1 - BG_{i,j})}{\sum_{i \in c}(1 - BG_{i,j})} = \beta_{c,j} + \tilde{u}_{c,j}^{-BG} 
\]

as the fraction of workers that are hired by firm \( j \) over all workers moving from occupation \( o \) to \( z \) and whose firm of origin **DOES NOT BELONG** to the same group as firm \( j \).
Affiliated firms hiring workers (Inflows)

The difference between the two ratios eliminates the **firm-occupation pair** fixed effect $\beta_{c,j}$:

$$R^{BG}_{c,j} - R^{-BG}_{c,j} = \gamma_{c,j} + \tilde{\nu}_{c,j}$$

This difference measures **how more likely is firm $j$ to hire a worker (transiting from $o$ to $z$) originating from the group than not originating from the group.**
The empirical model

Affiliated firms hiring workers (Inflows)

- The difference between the two ratios eliminates the **FIRM-OCCUPATION PAIR** fixed effect $\beta_{c,j}$:

\[
R_{c,j}^{BG} - R_{c,j}^{-BG} = \gamma_{c,j} + \tilde{\nu}_{c,j} \tag{4}
\]

- This difference measures **HOW MORE LIKELY IS FIRM** $j$ **TO HIRE A WORKER (TRANSITING FROM** $o$ **TO** $z$ **) ORIGINATING FROM THE GROUP THAN NOT ORIGINATING FROM THE GROUP.**
Affiliated firms hiring workers (Inflows)

Set of workers moving from occupation \( o \) to occupation \( z \)
The empirical model

Affiliated firms hiring workers (Inflows)

Cestone, Fumagalli, Kramarz, Pica ()
Internal Labor Markets in Business Groups
Affiliated firms hiring workers (Inflows)

- Subset of workers moving from occupation $o$ to occupation $z$ that do not originate from $j$’s group.
- Subset of workers moving from occupation $o$ to occupation $z$ that originate from $j$’s group.
- Set of workers moving from occupation $o$ to occupation $z$
The empirical model

Affiliated firms hiring workers (Inflows)

Set of workers moving from occupation $o$ to occupation $z$

Subset of workers moving from $o$ to $z$ that do not originate from $j$’s group.

Subset of workers moving from $o$ to $z$ that originate from $j$’s group.

Workers hired by firm $j$ among those (moving from $o$ to $z$) that originate from the same group.

Set of workers moving from occupation $o$ to occupation $z$.

Subset of workers moving from $o$ to $z$ that \textbf{do not originate from $j$’s group}.
Affiliated firms hiring workers (Inflows)

The empirical model

Workers hired by firm j among those (moving from o to z) that do not originate from the same group

Workers hired by firm j among those (moving from o to z) that originate from the same group

Subset of workers moving from o to z that do not originate from j’s group.

Subset of workers moving from o to z that originate from j’s group.

Set of workers moving from occupation o to occupation z
Affiliated firms hiring workers (Inflows)

Workers hired by firm j among those (moving from $o$ to $z$) that do not originate from the same group

Workers hired by firm j among those (moving from $o$ to $z$) that originate from the same group

Subset of workers moving from $o$ to $z$ that do not originate from j's group.

Subset of workers moving from $o$ to $z$ that originate from j's group.

Set of workers moving from occupation $o$ to occupation $z$
Affiliated firms hiring workers (Inflows)

Workers hired by firm j among those (moving from \( o \) to \( z \)) that do not originate from the same group

Workers hired by firm j among those (moving from \( o \) to \( z \)) that originate from \( j \)'s group.

Set of workers moving from occupation \( o \) to occupation \( z \)

Subset of workers moving from \( o \) to \( z \) that do not originate from \( j \)'s group.

Subset of workers moving from \( o \) to \( z \) that originate from \( j \)'s group.

Excess probability = 

\[
\frac{A}{A + C} - \frac{B}{B + D}
\]
The empirical model

Affiliated firms hiring workers (Inflows)

Workers hired by firm j among those (moving from o to z) that originate from the same group

Workers hired by firm j among those (moving from o to z) that do not originate from the same group

Subset of workers moving from o to z that do not originate from j’s group.

Subset of workers moving from o to z that originate from j’s group.

Set of workers moving from occupation o to occupation z

Excess probability = \frac{A}{A + C} - \frac{B}{B + D}

We are estimating the counterfactual probability through the workers that were originally employed outside the group.

Cestone, Fumagalli, Kramarz, Pica () Internal Labor Markets in Business Groups
The empirical model

Affiliated firms hiring workers (Inflows)

Workers hired by firm j among those (moving from \( o \) to \( z \)) that originate from j’s group.

Workers hired by firm j among those (moving from \( o \) to \( z \)) that do not originate from the same group.

Subset of workers moving from \( o \) to \( z \) that do not originate from j’s group.

Subset of workers moving from \( o \) to \( z \) that originate from j’s group.

We restrict these workers to originate from the same departments in which affiliated firms are active.

Excess probability:

\[
\frac{A}{A + C} - \frac{B}{B + D}
\]
We merged **DADS** (allowing us to follow workers from firm to firm) and **LIFI** (allowing us to identify all the firms affiliated with a given group).

- **DADS Postes Files**: administrative database of matched employer-employee information collected by INSEE:
  - cover *all* employed people in the economy.
  - for each individual, information on the plant/firm identifier in year \( t \) and in year \( t-1 \).
  - for each year, information on: wage, number of working days, number of hours, type of occupation, full time/part time status, geographical location (of the plant and the firm), industry classification, etc.

- **LIFI Files**: survey collected by INSEE
  - unique data set for the study of BG activity
  - available information: financial links between firms with identification of the head of a group and of all the firms (directly and indirectly) controlled by the head.
  - covers the vast majority of French BGs.
The data

We merged **DADS** (allowing us to follow workers from firm to firm) and **LIFI** (allowing us to identify all the firms affiliated with a given group).

- **DADS Postes Files**: administrative database of matched employer-employee information collected by INSEE:
  - cover *all* employed people in the economy.
  - for each individual, information on the plant/firm identifier in year $t$ and in year $t-1$.
  - for each year, information on: wage, number of working days, number of hours, type of occupation, full time/part time status, geographical location (of the plant and the firm), industry classification, etc.

- **LIFI Files**: survey collected by INSEE
  - unique data set for the study of BG activity
  - available information: financial links between firms with identification of the head of a group and of all the firms (directly and indirectly) controlled by the head.
  - covers the vast majority of French BGs.
The data

We merged **DADS** (allowing us to follow workers from firm to firm) and **LIFI** (allowing us to identify all the firms affiliated with a given group).

- **DADS Postes Files**: administrative database of matched employer-employee information collected by INSEE:
  - cover *all* employed people in the economy.
  - for each individual, information on the plant/firm identifier in year *t* and in year *t-1*.
  - for each year, information on: wage, number of working days, number of hours, type of occupation, full time/part time status, geographical location (of the plant and the firm), industry classification, etc.

- **LIFI Files**: survey collected by INSEE
  - unique data set for the study of BG activity
  - available information: financial links between firms with identification of the head of a group and of all the firms (directly and indirectly) controlled by the head.
  - covers the vast majority of French BGs.
The merged data span the period 2002-2010.

We disregard transitions from/to unemployment.

We have removed occupations denoted as ‘Fonction Publique’, temporary agencies and employers classified as ‘particulier employeur’ (non-firm employers).

We remove observations with missing wage.

This leave us with, on average:

- **1,574,000** job-to-job flows per year during the sample period, which represent **6.7%** of total workers in our sample.
- Intra-group flows represent **8.5%** of total flows in our sample.
For which occupations is the ILM more active?

We have a $\gamma_{c,j}$ for every couple of occupations (and potentially departments, sex, industry...) and group affiliated firm.

To present these results we average this excess probability by:

- occupation pair
- occupation of origin (not shown)
- occupation of destination (not shown)
For which occupations is the ILM more active?
Inflows (net of year and firm fixed effect)

### TOP TEN

<table>
<thead>
<tr>
<th>Occupation pair</th>
<th>Code</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors, researchers, scientific occupations-Top managers of industrial/commercial firms with more than 10 employees</td>
<td>34-23</td>
<td>0.05179</td>
</tr>
<tr>
<td>Top managers of industrial/commercial firms with more than 10 employees - Professors, researchers, scientific occupations</td>
<td>23-34</td>
<td>0.04803</td>
</tr>
<tr>
<td>Top managers of industrial/commercial firms with more than 10 employees-Top managers of industrial/commercial firms with more than 10 employees</td>
<td>23-23</td>
<td>0.04408</td>
</tr>
<tr>
<td>Top managers/chiefs of industrial/commercial firms with less than 10 employees-Top managers of industrial/commercial firms with more than 10 employees</td>
<td>22-23</td>
<td>0.03798</td>
</tr>
<tr>
<td>Top managers of industrial/commercial firms with more than 10 employees-Administrative and commercial managers</td>
<td>23-37</td>
<td>0.03481</td>
</tr>
<tr>
<td>Top managers of industrial/commercial firms with more than 10 employees-Administrative and commercial managers</td>
<td>37-23</td>
<td>0.03410</td>
</tr>
<tr>
<td>Top managers/chiefs of industrial/commercial firms with less than 10 employees-Administrative and commercial managers</td>
<td>22-37</td>
<td>0.03320</td>
</tr>
<tr>
<td>Administrative and commercial managers-Top managers/chiefs of industrial/commercial firms with less than 10 employees</td>
<td>37-22</td>
<td>0.03201</td>
</tr>
<tr>
<td>Supervisors and ‘agents de maitrise’-Supervisors and ‘agents de maitrise’</td>
<td>48-48</td>
<td>0.03187</td>
</tr>
</tbody>
</table>

### BOTTOM TEN

<table>
<thead>
<tr>
<th>Occupation pair</th>
<th>Code</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal service occupations-Administrative white collars in firms</td>
<td>56-54</td>
<td>0.0118</td>
</tr>
<tr>
<td>Handicraft non qualified workers-Handicraft qualified workers</td>
<td>68-63</td>
<td>0.01349</td>
</tr>
<tr>
<td>Industrial qualified workers-Industrial non qualified workers</td>
<td>62-67</td>
<td>0.01231</td>
</tr>
<tr>
<td>Sales and related occupations-Administrative white collars in firms</td>
<td>55-54</td>
<td>0.01203</td>
</tr>
<tr>
<td>Industrial non qualified workers-Industrial qualified workers</td>
<td>67-62</td>
<td>0.01010</td>
</tr>
<tr>
<td>Industrial qualified workers -Industrial qualified workers</td>
<td>62-62</td>
<td>0.00984</td>
</tr>
<tr>
<td>Handicraft qualified workers-Handicraft qualified workers</td>
<td>63-63</td>
<td>0.00778</td>
</tr>
<tr>
<td>Sales and related occupations-Sales and related occupations</td>
<td>55-55</td>
<td>0.00608</td>
</tr>
<tr>
<td>Personal service occupations-Personal service occupations</td>
<td>56-56</td>
<td>0.00341</td>
</tr>
<tr>
<td>Drivers-Drivers</td>
<td>64-64</td>
<td></td>
</tr>
</tbody>
</table>
For which occupations is the ILM more active?

- The ILM effect is strong for transitions involving managerial occupations and other HIGH HUMAN CAPITAL, INFORMATION-INTENSIVE OCCUPATIONS.
- The ILM effect is weak for UNSKILLED OCCUPATIONS (blue collars, shop assistants, drivers)
- One potential explanation is that the ILM allows to alleviate search and training costs that are usually higher for skilled workers
Heterogeneity in ILM activity

For each year, we take averages of the excess probability \( \gamma_{c,j} \) BY FIRM

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>St.Err.</th>
<th>50</th>
<th>75</th>
<th>95</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>0.09794</td>
<td>0.00143</td>
<td>0.01923</td>
<td>0.80915</td>
<td>28775</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>0.10266</td>
<td>0.00150</td>
<td>0.02270</td>
<td>0.91667</td>
<td>27841</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>0.10384</td>
<td>0.00147</td>
<td>0.02414</td>
<td>0.93594</td>
<td>29307</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>0.10384</td>
<td>0.00143</td>
<td>0.02480</td>
<td>0.94444</td>
<td>31105</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>0.09598</td>
<td>0.00133</td>
<td>0.01556</td>
<td>0.80000</td>
<td>32904</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>0.08659</td>
<td>0.00112</td>
<td>0.00595</td>
<td>0.66667</td>
<td>42500</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.09768</td>
<td>0.00129</td>
<td>0.01118</td>
<td>0.87500</td>
<td>36480</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>0.09563</td>
<td>0.00127</td>
<td>0.00800</td>
<td>0.92299</td>
<td>37791</td>
<td></td>
</tr>
</tbody>
</table>

One potential reason is **GROUP HETEROGENEITY**
Heterogeneity of Groups

The size distribution of groups is highly **ASYMMETRIC**:

- **FEW LARGE GROUPS**, with many large affiliates, that are diversified both from a sectoral and geographical perspective
- **MANY SMALL GROUPS**, with few small affiliates, that are hardly diversified.

Groups in the top decile, on average:
- have 20 units (top percentile: more than 100 units).
- employ from 1000 to 600 workers per unit in the period 1999-2010.
- operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
- have units located in 4 different regions (top percentile: more than 7).

Groups in the rest of the population:
- have less than 6 units.
- employ less than 50 workers per unit.
- operate in less than 3 different 4-digit sectors.
- have units mostly located in the same region.

Diversification captured by HHI indices
Heterogeneity of Groups

The size distribution of groups is highly **ASYMMETRIC**: 

- **FEW LARGE GROUPS**, with many large affiliates, that are diversified both from a sectoral and geographical perspective
- **MANY SMALL GROUPS**, with few small affiliates, that are hardly diversified.

Groups in the top decile, on average:
- have 20 units (top percentile: more than 100 units).
- employ from 1000 to 600 workers per unit in the period 1999-2010.
- operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
- have units located in 4 different regions (top percentile: more than 7).

Groups in the rest of the population:
- have less than 6 units.
- employ less than 50 workers per unit.
- operate in less than 3 different 4-digit sectors.
- have units mostly located in the same region.

Diversification captured by HHI indices
Heterogeneity of Groups

The size distribution of groups is highly **ASYMMETRIC**:

- **FEW LARGE GROUPS**, with many large affiliates, that are diversified both from a sectoral and geographical perspective.

- **MANY SMALL GROUPS**, with few small affiliates, that are hardly diversified.

**Groups in the top decile, on average:**
- have 20 units (top percentile: more than 100 units).
- employ from 1000 to 600 workers per unit in the period 1999-2010.
- operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
- have units located in 4 different regions (top percentile: more than 7).

**Groups in the rest of the population:**
- have less than 6 units.
- employ less than 50 workers per unit.
- operate in less than 3 different 4-digit sectors.
- have units mostly located in the same region.

**Diversification captured by HHI indices**
Heterogeneity of Groups

The size distribution of groups is highly \textit{asymmetric}:

- \textbf{FEW LARGE GROUPS}, with many large affiliates, that are diversified both from a sectoral and geographical perspective.

- \textbf{MANY SMALL GROUPS}, with few small affiliates, that are hardly diversified.

Groups in the top decile, on average:
- have 20 units (top percentile: more than 100 units).
- employ from 1000 to 600 workers per unit in the period 1999-2010.
- operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
- have units located in 4 different regions (top percentile: more than 7).

Groups in the rest of the population:
- have less than 6 units.
- employ less than 50 workers per unit.
- operate in less than 3 different 4-digit sectors.
- have units mostly located in the same region.

\textit{Diversification captured by HHI indices}
Heterogeneity of Groups

The size distribution of groups is highly **ASYMMETRIC**: 

- **FEW LARGE GROUPS**, with many large affiliates, that are diversified both from a sectoral and geographical perspective

- **MANY SMALL GROUPS**, with few small affiliates, that are hardly diversified.

Groups in the top decile, on average:

- have 20 units (top percentile: more than 100 units).
- employ from 1000 to 600 workers per unit in the period 1999-2010.
- operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
- have units located in 4 different regions (top percentile: more than 7).

Groups in the rest of the population:

- have less than 6 units.
- employ less than 50 workers per unit.
- operate in less than 3 different 4-digit sectors.
- have units mostly located in the same region.

Diversification captured by HHI indices
## Descriptive Statistics

### Firm-level

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>St.dev.</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\gamma_{ji}$</td>
<td>0.098</td>
<td>0.24</td>
<td>-0.64</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>Firm size (empl.)</td>
<td>168.61</td>
<td>1573.82</td>
<td>0.005</td>
<td>217640</td>
<td>232,646</td>
</tr>
<tr>
<td>Rest of the group size (empl.)</td>
<td>10327</td>
<td>20578.28</td>
<td>0.001</td>
<td>349038</td>
<td>232,646</td>
</tr>
<tr>
<td>Number of 4 digit sectors</td>
<td>11</td>
<td>17.39</td>
<td>1</td>
<td>92</td>
<td>232,646</td>
</tr>
<tr>
<td>Number of macrosectors</td>
<td>1.88</td>
<td>0.99</td>
<td>1</td>
<td>6</td>
<td>232,646</td>
</tr>
<tr>
<td>Number of regions</td>
<td>5.32</td>
<td>6.24</td>
<td>1</td>
<td>22</td>
<td>232,646</td>
</tr>
<tr>
<td>HHI (macro sectors)</td>
<td>0.87</td>
<td>0.18</td>
<td>0.26</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>HHI (4-digit sectors)</td>
<td>0.58</td>
<td>0.27</td>
<td>0.08</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>HHI (Paris)</td>
<td>0.85</td>
<td>0.19</td>
<td>0.5</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>HHI (Regions)</td>
<td>0.71</td>
<td>0.30</td>
<td>0.08</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>% of firms that close</td>
<td>0.015</td>
<td>0.12</td>
<td>0</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>Number of firm closure in the rest of the group</td>
<td>1.55</td>
<td>4.99</td>
<td>0</td>
<td>68</td>
<td>232,646</td>
</tr>
<tr>
<td>% of firms for which at least one firm closes in the rest of the group</td>
<td>0.28</td>
<td>0.45</td>
<td>0</td>
<td>1</td>
<td>232,646</td>
</tr>
<tr>
<td>Number of plant closure in the group</td>
<td>15.71</td>
<td>98.69</td>
<td>0</td>
<td>2149</td>
<td>232,646</td>
</tr>
<tr>
<td>% of firms for which at least one plant closes in the group</td>
<td>0.45</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
<td>232,646</td>
</tr>
</tbody>
</table>
In which BGs is the ILM more active?

ILM and group sectoral diversification - Inflows

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Log) Firm size</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Rest of the group size</td>
<td>-0.004</td>
<td>-0.003</td>
<td>-0.003</td>
<td>-0.003</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Number of affiliated firms</td>
<td>-0.078***</td>
<td>-0.078***</td>
<td>-0.078***</td>
<td>-0.079***</td>
<td>-0.081***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>State Control</td>
<td>-0.016</td>
<td>-0.016</td>
<td>-0.0013</td>
<td>-0.016</td>
<td>-0.006</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Foreign control</td>
<td>-0.052***</td>
<td>-0.052***</td>
<td>-0.049***</td>
<td>-0.051***</td>
<td>-0.042***</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>(Inverse) Diversification (Macrosectors)</td>
<td>0.005</td>
<td>0.007</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.008)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification × Rest of the group size</td>
<td>-0.009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification (4 digit)</td>
<td></td>
<td></td>
<td>-0.014*</td>
<td>-0.025***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.007)</td>
<td>(0.007)</td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification × Rest of the group size</td>
<td></td>
<td></td>
<td></td>
<td>-0.019***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.003)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Firm × Group FE and year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

One star 5% significance, two stars 1% significance, and three stars 0.1% significance. Standard errors are clustered at the group level.
In which BGs is the ILM more active?

ILM and group geographical diversification - Inflows

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Log) Firm size</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Rest of the group size</td>
<td>-0.004*</td>
<td>-0.001</td>
<td>-0.003</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Number of affiliated firms</td>
<td>-0.079***</td>
<td>-0.080***</td>
<td>-0.080***</td>
<td>-0.082***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>State Control</td>
<td>-0.015</td>
<td>-0.007</td>
<td>-0.016</td>
<td>-0.007</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.012)</td>
<td>(0.013)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>Foreign control</td>
<td>-0.052***</td>
<td>-0.046***</td>
<td>-0.052***</td>
<td>-0.044***</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.012)</td>
<td>(0.013)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>(Inverse) Diversification (Paris Area)</td>
<td>-0.029***</td>
<td>-0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification × Rest of the group size</td>
<td></td>
<td></td>
<td>-0.026***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification (Regions)</td>
<td>-0.032***</td>
<td>-0.027**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.009)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Inverse) Diversification × Rest of the group size</td>
<td></td>
<td></td>
<td>-0.026***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Firm × Group FE and year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

One star 5% significance, two stars 1% significance, and three stars 0.1% significance. Standard errors are clustered at the group level.
Firm/Plant Closure

Does the ILM become particularly active when some firms/plants in the group are closed?

- We identify **FIRM/PLANT CLOSURES**: firms/plants whose employment drops by more than 90% from one year to the other.

- We remove **FALSE CLOSURES**: cases in which more than 70% of the lost employment ends up in the same firm/plant.
In which BGs is the ILM more active?

ILM and firm closure - Inflows

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Log) Firm size</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
<td>0.012***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Rest of the group size</td>
<td>-0.004 *</td>
<td>-0.004</td>
<td>-0.003</td>
<td>-0.003</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>(Log) Number of affiliated firms</td>
<td>-0.079***</td>
<td>-0.079***</td>
<td>-0.078***</td>
<td>-0.078***</td>
<td>-0.079***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Firm closure in the rest of the group</td>
<td>0.007***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exactly 1 firm closure</td>
<td>0.007***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 2 and 5 firm closures</td>
<td>0.007***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 6 and 20 firm closures</td>
<td>0.008*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 20 firm closures</td>
<td>-0.004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm closure at t-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.017***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.001)</td>
</tr>
<tr>
<td>Exactly 1 firm closure at t-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.018***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.001)</td>
</tr>
<tr>
<td>Between 2 and 5 firm closures at t-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.016***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.002)</td>
</tr>
<tr>
<td>Between 6 and 20 firm closures at t-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.020***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.003)</td>
</tr>
<tr>
<td>More than 20 firm closures at t-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.021)</td>
</tr>
<tr>
<td>Plant closure in the group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.006***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.001)</td>
</tr>
<tr>
<td>N</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
<td>232,646</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Firm × Group FE and year dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

One star 5% significance, two stars 1% significance, and three stars 0.1% significance. Standard errors are clustered at the group level.

Cestone, Fumagalli, Kramarz, Pica () Internal Labor Markets in Business Groups
Displaced workers

- We estimate the excess probabilities on the set of workers displaced by the closing firms/plants.
- We focus on the workers separating from closing firms/plants in the last two years of activity of the firm/plant.
Displaced workers from closing firms (Outflows)

Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?
Displaced workers from closing firms (Outflows)

- Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?

![Diagram showing subset of workers moving from occupation o to z that land into j’s group.](image-url)
Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?
Displaced workers from closing firms (Outflows)

Are displaced workers that find a job in a group - as compared to those displaced workers that find a job outside that group - more likely to originate from an affiliated closing firm/plant?
Displaced workers from closing firms (Outflows)

Are DISPLACED workers that find a job in a group - as compared to those DISPLACED workers that find a job outside that group - more likely to originate from an affiliated CLOSING firm/plant?

---

Cestone, Fumagalli, Kramarz, Pica ()
Internal Labor Markets in Business Groups
Are displaced workers that find a job in a group - as compared to those displaced workers that find a job outside that group - more likely to originate from an affiliated closing firm/plant?

Excess probability = \[
\frac{\frac{A}{A+C} - \frac{B}{B+D}}{1}
\]

- **A**: Workers originating from firm j among those (moving from o to z) that land into j’s group.
- **B**: Workers originating from firm j among those (moving from o to z) that do not land into j’s group.
- **C**: Subset of workers moving from o to z that land outside j’s group.
- **D**: Subset of workers moving from o to z that land into j’s group.
## Displaced workers: Outflows

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>St.Err.</th>
<th>50</th>
<th>75</th>
<th>95</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.38339</td>
<td>0.01002</td>
<td>0.13991</td>
<td>0.95578</td>
<td>1</td>
<td>1831</td>
</tr>
<tr>
<td>2003</td>
<td>0.42535</td>
<td>0.01074</td>
<td>0.22222</td>
<td>0.99941</td>
<td>1</td>
<td>1664</td>
</tr>
<tr>
<td>2004</td>
<td>0.44958</td>
<td>0.01119</td>
<td>0.28981</td>
<td>1</td>
<td>1</td>
<td>1547</td>
</tr>
<tr>
<td>2005</td>
<td>0.44845</td>
<td>0.01114</td>
<td>0.31965</td>
<td>1</td>
<td>1</td>
<td>1554</td>
</tr>
<tr>
<td>2006</td>
<td>0.42650</td>
<td>0.01072</td>
<td>0.22584</td>
<td>0.99965</td>
<td>1</td>
<td>1642</td>
</tr>
<tr>
<td>2007</td>
<td>0.43220</td>
<td>0.01003</td>
<td>0.25000</td>
<td>0.99821</td>
<td>1</td>
<td>1871</td>
</tr>
<tr>
<td>2008</td>
<td>0.41062</td>
<td>0.00971</td>
<td>0.21067</td>
<td>0.99048</td>
<td>1</td>
<td>1951</td>
</tr>
</tbody>
</table>

### Firm closure

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean</th>
<th>St.Err.</th>
<th>50</th>
<th>75</th>
<th>95</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.24691</td>
<td>0.00615</td>
<td>0.00300</td>
<td>0.46071</td>
<td>1</td>
<td>3790</td>
</tr>
<tr>
<td>2003</td>
<td>0.26776</td>
<td>0.00660</td>
<td>0.00928</td>
<td>0.50000</td>
<td>1</td>
<td>3528</td>
</tr>
<tr>
<td>2004</td>
<td>0.28958</td>
<td>0.00696</td>
<td>0.01536</td>
<td>0.60000</td>
<td>1</td>
<td>3366</td>
</tr>
<tr>
<td>2005</td>
<td>0.27069</td>
<td>0.00660</td>
<td>0.00684</td>
<td>0.50000</td>
<td>1</td>
<td>3548</td>
</tr>
<tr>
<td>2006</td>
<td>0.26988</td>
<td>0.00654</td>
<td>0.01089</td>
<td>0.50000</td>
<td>1</td>
<td>3580</td>
</tr>
<tr>
<td>2007</td>
<td>0.26670</td>
<td>0.00605</td>
<td>0.00522</td>
<td>0.50000</td>
<td>1</td>
<td>4197</td>
</tr>
<tr>
<td>2008</td>
<td>0.25695</td>
<td>0.00603</td>
<td>0.00586</td>
<td>0.49520</td>
<td>1</td>
<td>4118</td>
</tr>
</tbody>
</table>

### Plant closure
Outflows from closing firms
Summary

**Findings:**
- Internal labor market are active across firms/occupations. Particularly so, for:
  - occupations involving high human capital/skills
  - firms in diversified and large business groups
  - around closures
- Diversification and mobility suggest an **insurance role** for BG.

**Future research:**
- Does ILM soften financial constraints affiliated firms are subject to?
- Endogenous group formation: does EPL (50-employee threshold, unions...) trigger group formation?
- Endogenous group formation: does product market regulations trigger group formation?
- ...

Cestone, Fumagalli, Kramarz, Pica () Internal Labor Markets in Business Groups